

Group Art Unit: 3729
Examiner: Arbes, C.

Atty. Ref.: FP01-091US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Toshio Itai
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Kenji Hashimoto
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Appl. No. : 09/950,030

Filed : September 10, 2001

For : INSULATION-DISPLACEMENT CONNECTOR CONNECTING
APPARATUS AND METHOD

MS Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Sir:

This Amendment is submitted in response to the Official Action of June 4,
2003. Please amend the application as follows:

IN THE CLAIMS:

1. (currently amended) An insulation-displacement connector connecting apparatus (100) for connecting an insulation-displacement connector (20) having a housing (22), at least one insulation-displacement terminal (23) mounted in the housing (22) and configured for connection with a plurality of wires (W; WH), and a cover (21) to be mounted on the housing (22), comprising:

a pressure-receiving table (140; 400) for at least partly receiving the housing (22) with the insulation-displacement terminal (23) mounted therein;

a press unit (200; 500) comprising, as connection-assisting parts (223-226; 450; 460; 470), a wire pushing device (223; 460) configured for directly engaging and pushing the wires (W; WH) mounted in the housing (22) on the pressure-receiving table (140; 400) along a pushing axis and into the insulation-displacement terminal (23) mounted in the housing (22) and a cover holder (224; 470) offset transversely from the wire pushing device relative to the pushing axis and configured for holding the cover (21) of the insulation-displacement connector (20) to mount the cover (21) on the housing (22) after the wires (W; WH) are pushed into the insulation-displacement terminal (23), the press unit (200; 500) further comprising means for moving the connection-assisting parts transverse to the pushing axis for selectively aligning one of the wire pushing devices and the cover holder with the pushing axis and for subsequently pressing the respective connection-assisting parts (223-226; 450; 460; 470) toward the pressure-receiving table (140; 400); and

a drive controlling means (310; 320) for controllably driving the connection assisting parts transverse to the pushing axis and controllably driving the press unit (200; 500) along the pushing axis so as to sequentially press the wire pushing device (223; 460) and the cover holder (224; 470).

2. (currently amended) An insulation-displacement connector connecting apparatus according to claim 1, wherein the press unit ~~(200; 500)~~ further comprises, as a connection-assisting part ~~(223-226; 450; 460; 470)~~, a wire checking device ~~(222; 450)~~ for checking the wires ~~(W; WH)~~ before the wires ~~(W; WH)~~ are pushed by the wire pushing device ~~(223; 460)~~, and the drive controlling means ~~(310; 320)~~ comprises a discriminating portion for judging ~~(S6)~~ whether a state of the wires ~~(W; WH)~~ is satisfactory when the wire checking device ~~(222; 450)~~ of the press unit ~~(200; 500)~~ is driven, the driving control means ~~(310; 320)~~ permitting ~~(S8)~~ the press unit ~~(200; 500)~~ to drive the wire pushing device ~~(223; 460)~~ and the cover holder ~~(224; 470)~~ if the discriminating portion judges ~~(S6)~~ that the state of the wires ~~(W; WH)~~ is satisfactory and hinders ~~(S7)~~ the operation of the press unit ~~(200; 500)~~ if the discriminating portion judges ~~(S6)~~ that the state of the wires ~~(W; WH)~~ is unsatisfactory.

3. (currently amended) An insulation-displacement connector connecting apparatus according to claim 1, wherein the pressure-receiving table ~~(140; 400)~~ is movable with respect to a casing ~~(510)~~ of the press unit ~~(200; 500)~~ between a mounting position where the wires ~~(W; WH)~~ can be mounted and a pressure-receiving position where the pressure-receiving table ~~(140; 400)~~ receives pressure from the press unit ~~(200; 500)~~.

4. (currently amended) An insulation-displacement connector connecting apparatus according to claim 1, wherein the press unit ~~(200; 500)~~ comprises:

a press ~~(210; 540)~~ substantially directly above the pressure-receiving table ~~(140; 400)~~ for performing a pressing operation,

a reciprocally movable unit ~~(220; 600)~~ for carrying the connection-assisting parts ~~(223-226; 450; 460; 470)~~ and reciprocally movable within a range of a specified stroke,

a switching device ~~(230; 620)~~ for switching the respective connection-assisting parts ~~(223-226; 450; 460; 470)~~ to a pressing position in the press ~~(210; 540)~~ via the reciprocally movable unit ~~(220; 600)~~ in an order of the wire pushing device ~~(223; 460)~~ and the cover holder ~~(224; 470)~~, and

a transmitting means ~~(211; 212; 600)~~ for transmitting a driving force of the press ~~(210; 540)~~ to the connection-assisting part ~~(223-226; 450; 460; 470)~~ at the pressing position.

5. (currently amended) An insulation-displacement connector connecting apparatus according to claim 4, wherein the reciprocally movable unit ~~(220)~~ comprises a shank ~~(211)~~ detachably mountable on a shank holder ~~(212)~~ of the press ~~(210)~~, and an elevatable block ~~(227)~~ for each of the connection-assisting parts ~~(223-226)~~ and being individually movable towards and away from the pressure-receiving table ~~(140)~~.

6. (currently amended) An insulation-displacement connector connecting apparatus according to claim 4, wherein the reciprocally movable unit ~~(600)~~ comprises an elevatable plate ~~(602)~~ adapted to carry the respective connection-assisting parts ~~(450; 460; 470)~~ and being directly driven by the press ~~(540)~~ to move towards and away from the pressure-receiving table ~~(140)~~.

7. (currently amended) An insulation-displacement connector connecting apparatus according to claim 6, wherein the press unit ~~(500)~~ is releasably mounted to the pressure-receiving table ~~(400)~~ fixedly mounted on a wire assembling board ~~(1)~~.

8. (currently amended) An insulation-displacement connector connecting apparatus according to claim 1, wherein the pressure-receiving table ~~(140; 400)~~ and the press unit ~~(200; 500)~~ are positioned with respect to each other by means of at least one pin ~~(144; 602a)~~ provided on one ~~(140; 500)~~ of the pressure-receiving table ~~(140; 400)~~ and

the press unit ~~(200; 500)~~ and by a corresponding recess ~~(144a; 404e)~~ provided on the other ~~(200; 400)~~ of the pressure-receiving table ~~(140; 400)~~ and the press unit ~~(200; 500)~~.

9. (cancelled).

10. (cancelled).

11. (currently amended) An insulation-displacement connector connecting apparatus ~~(100)~~ for connecting an insulation-displacement connector ~~(20)~~ having a housing ~~(22)~~, at least one insulation-displacement terminal ~~(23)~~ mounted in the housing ~~(22)~~ and configured for connection with a plurality of wires ~~(W; WH)~~, and a cover ~~(21)~~ to be mounted on the housing ~~(22)~~, comprising:

a press ~~(210; 540)~~ movable along a first axis for performing a pressing operation;

a pressure-receiving table ~~(140; 400)~~ having a housing-receiving portion ~~(140c; 404a)~~ configured for receiving the housing ~~(22)~~ with the insulation-displacement terminal ~~(23)~~ mounted therein, the pressure-receiving table ~~(140; 400)~~ being disposed such that the housing-receiving portion ~~(140c; 404a)~~ is substantially aligned with the first axis;

a plurality of connection assisting parts ~~(223-226; 450; 460; 470)~~, at least that are different from one another, one of said different connection assisting parts ~~(223-226; 450; 460; 470)~~ being disposed substantially on said first axis and between the pressure-receiving table ~~(140; 400)~~ and the press ~~(210; 540)~~; and

a reciprocally movable unit ~~(220; 600)~~ connected to the different connection-assisting parts ~~(223-226; 450; 460; 470)~~ and operative for moving the different connection assisting parts ~~(223-226; 450; 460; 470)~~ along a second axis substantially perpendicular to said first axis for positioning selective ones of said different connection assisting parts ~~(223-226; 450; 460; 470)~~ in line with the first axis for performing different specified

connection assisting functions on the housing (22) and the insulation-displacement terminal (23) on the pressure receiving table (100; 400).

12. (currently amended) The insulation-displacement connector connecting apparatus of claim 11, wherein the pressure-receiving table (140) is selectively movable along a third axis substantially perpendicular to said first and second axes from a mounting position where the housing-receiving portion (140e) is offset from said first axis and a pressure-receiving position where said housing-receiving portion (140e) is aligned with said first axis.

13. (currently amended) The insulation-displacement connector connecting apparatus of claim 11, wherein the connection-assisting parts comprise a wire pushing device (223; 460) configured for directly engaging and pushing the wires (W; WH) into the insulation-displacement terminal (23) mounted in the housing (22) on the pressure-receiving table (140; 400).

14. (currently amended) The insulation-displacement connector connecting apparatus (100) of claim 13, wherein the connection-assisting parts further comprise a cover holder (224; 470) for holding the cover (21) of the insulation-displacement connector (20) and mounting the cover (21) on the housing (22) after the wires (W; WH) are pushed into the insulation-displacement terminal (23).

15. (currently amended) The insulation-displacement connector connecting apparatus of claim 14, wherein the connection-assisting parts further comprise a wire checking device (222; 450) for checking the wires (W; WH) before the wires (W; WH) are pushed by the wire pushing device (223; 460), and the drive controlling means (310; 320) comprises a discriminating portion for judging (S6) whether a state of the wires (W; WH) is satisfactory when the wire checking device (222; 450) of the press unit (200; 500) is driven, the driving control means (310; 320) permitting (S8) the press unit (200;

500) to drive the wire pushing device (223; 460) and the cover holder (224; 470) if the discriminating portion judges (S6) that the state of the wires (W; WH) is satisfactory and hinders (S7) the operation of the press unit (200; 500) if the discriminating portion judges (S6) that the state of the wires (W; WH) is unsatisfactory.

REMARKS

Reconsideration of this application, as amended, is requested.

Claims 1-8 and 11-15 remain in the application. Non-elected claims 9 and 10 have been cancelled without prejudice and may be prosecuted in a divisional application. Each of the remaining claims has been amended to eliminate the numeric references that had been in the original claims. Numeric references are not required under U.S. patent law and are given no patentable weight. Accordingly, the elimination of numeric references is not a narrowing amendment and is not an amendment entered for purposes of patentability. Additionally, independent claims 1 and 11 have been amended to define the invention more clearly. Claim 13 also has been amended to correct the originally intended dependency.

Claims 1-8 and 11-15 were rejected under 35 USC 103(a) as being obvious over Adlon et al.

The Adlon et al. reference is directed to an apparatus for connecting a connector to a flat cable. The apparatus functions by positioning the flat cable between the main body 10 of the connector and the cover 12 of the connector. The apparatus then moves the cover 12 and the main body 10 toward one another so that insulation piercing terminal fittings in the main body pierce through the wires of the flat cable and make electrical connection with the cores of the respective wires. Simultaneously, the cover 12 is engaged with the main body 10 so that the end of the flat cable 26 is sandwiched between the main body 10 and the cover 12. The apparatus shown in Adlon et al. performs this exact same operation sequentially at opposite ends of the flat cable as the flat cable is being advanced longitudinally along the length of the flat cable. After completing the downstream termination of one cable and the upstream termination of

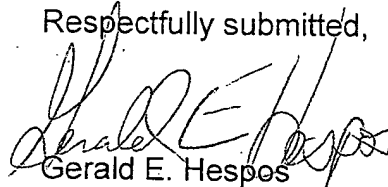
another cable, the apparatus of Adlon et al. cuts portions of the flat cable between the two terminations.

The subject application explains that the Adlon et al. type of apparatus works well when there are a relatively small number of wires to be terminated (see paragraph 0007). However, paragraph 0007 explains that connectors with a large number of terminal fittings for connection to a corresponding number of wires cannot be connected merely by urging the cover down onto the wires to push the wires into the insulation-displacement terminal fittings. In this regard, both the cover and the base are formed from a plastic material that is intentionally designed to be as small as possible. The large forces required to effect termination for a large connector may exceed the magnitude of forces that can be exerted efficiently through the plastic cover. The Adlon et al. apparatus has absolutely no suggestion of a wire pushing device for directly contacting and pushing the wires mounted in the housing on the pressure-receiving table into the insulation-displacement terminal mounted in the housing. Adlon et al. also has absolutely no suggestion of a drive control means for controllably driving the press unit and controllably translating the connection-assisting parts transverse to the push axis of the wires so as to sequentially press the wire pushing device and the cover holder.

In contrast, the invention defined by amended claim 1 now positively recites a wire pushing device for directly contacting and pushing the wires mounted in the housing on the pressure-receiving table. This wire pushing device is defined as being structurally and functionally independent of the cover holder for holding the cover of the insulation-displacement connector and for mounting the cover on the housing after the wires are pushed into the insulation-displacement terminal. The invention defined by amended claim 1 further defines the driving control means for controllably moving the connection-assisting parts transverse to the pushing axis and driving the press unit so as to sequentially press

the wire pushing device and the cover holder. The Adlon et al. reference would have to be redesigned completely to bring that reference closer to the invention defined by amended independent claim 1 or amended independent claim 11 and their respective dependent claims. Accordingly, it is submitted that the invention defined by the amended claims is directed to patentable subject matter, and allowance is solicited. The Examiner is urged to contact applicants attorney at the number below to expedite the prosecution of this application.

Respectfully submitted,



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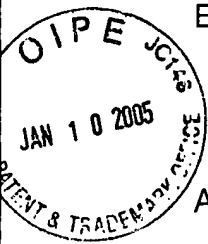
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Date: August 20, 2003

Group Art Unit: 3729
Examiner: Arbes, C.

Atty. Ref.: FP01-091US



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Applicants : Toshio Itai et al.
Appl. No. : 09/950,030
Filed : September 10, 2001
For : INSULATION-DISPLACEMENT CONNECTOR CONNECTING
APPARATUS AND METHOD

MS Issue Fee
Commissioner for Patents
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REQUEST FOR RECALCULATION OF PATENT TERM ADJUSTMENT

Sir:

The above-identified application was allowed on December 29, 2004 and the issue fee will be paid well prior to the due date. The attachments to the Notice of Allowance indicate that there is no patent term adjustment. This calculation seemed unreasonable to counsel, and hence counsel checked on the PAIR System. The attached page from the PAIR System indicates that there was a 149 day delay attributable to the USPTO. However, that delay was more than offset by an alleged 453 day delayed "response after non-final action".

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:

MS Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
on January 6, 2005

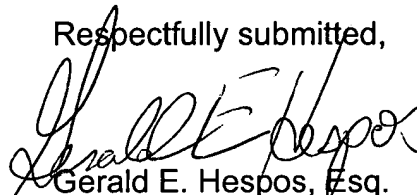
Hilda A. Abreu

A handwritten signature in black ink, appearing to read "Hilda A. Abreu".

In fact, there was no delayed response to a non-final action. The first Office Action on the merits of the claims issued on June 4, 2003. An Amendment was filed on August 20, 2003 and was received in the United States Patent and Trademark Office on August 25, 2003. Copies of the Amendment and the return postcard are attached.

On November 30, 2004 counsel received a telephone call from Examiner Arbes. Examiner Arbes indicated that the Amendment apparently had become lost in the United States Patent and Trademark Office and required the applicant to resubmit the amendment by facsimile. The August 23, 2003 Amendment was faxed to Examiner Arbes on November 30, 2004 along with a copy of the return postcard. The resubmission of that amendment apparently led to the December 29, 2004 Notice of Allowance. It is submitted, with respect that all of the delay was attributable to inaction by the United States Patent and Trademark Office. Accordingly, the patent owner is entitled to the benefit of a patent term adjustment attributable to the delays of the United States Patent and Trademark Office.

Respectfully submitted,



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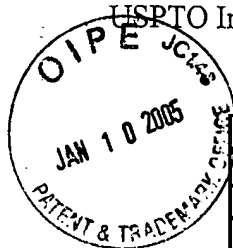
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Date: January 6, 2005



Patent Term Adjustment (PTA) for Application Number: 09/950,030			
			Days
Filing or 371(c) Date:	09-10-2001	USPTO Delay (PTO):	149
Issue Date of Patent:	-	Three Years:	-
Pre-Issue Petitions (days):	+0	Applicant Delay (APPL):	453
Post-Issue Petitions (days):	+0	Total PTA:	0
USPTO Adjustment(days):	+0	Explanation Of Calculations	
Patent Term Adjustment History			
Date	Contents Description	PTO(Days)	APPL(Days)
12-29-2004	Mail Notice of Allowance		
12-27-2004	Issue Revision Completed		
12-27-2004	Notice of Allowance Data Verification Completed		
12-27-2004	Case Docketed to Examiner in GAU		
12-27-2004	Notice of Allowability		
12-21-2004	IFW TSS Processing by Tech Center Complete		
12-21-2004	Date Forwarded to Examiner		
11-30-2004	Response after Non-Final Action	↑	453
06-04-2003	Mail Non-Final Rejection	↑	↑
06-02-2003	Non-Final Rejection	↑	
05-22-2003	Date Forwarded to Examiner	↑	
04-28-2003	Response to Election / Restriction Filed	↑	
04-08-2003	Mail Restriction Requirement	149	
04-07-2003	Requirement for Restriction / Election	↑	
12-23-2002	Reference capture on IDS	↑	
12-23-2002	Information Disclosure Statement (IDS) Filed	↑	
04-02-2002	Case Docketed to Examiner in GAU	↑	
01-30-2002	Case Docketed to Examiner in GAU	↑	
12-13-2001	Transfer Inquiry to GAU	↑	
11-26-2001	Application Dispatched from OIPE	↑	
11-16-2001	Application Is Now Complete	↑	
10-19-2001	Oath or Declaration Filed (Including Supplemental)	↑	
10-09-2001	Notice Mailed--Application Incomplete--Filing Date Assigned	↑	
10-08-2001	Correspondence Address Change	↑	
09-18-2001	IFW Scan & PACR Auto Security Review	↑	
09-10-2001	Information Disclosure Statement (IDS) Filed	↑	
09-10-2001	Request for Foreign Priority (Priority Papers May Be Included)	↑	
09-10-2001	Initial Exam Team nn	↑	

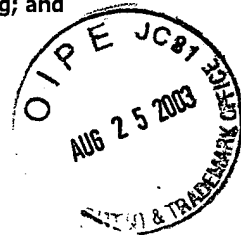


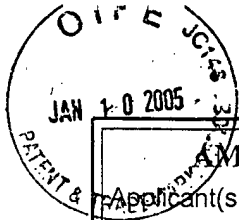
Atty. Ref. : FP01-091US
Applicant(s) : Toshio Itai et al.
Appl. No. : 09/950,030
Title : INSULATION-DISPLACEMENT CONNECTOR CONNECTING
APPARATUS AND METHOD

The return of this postcard properly stamped will acknowledge receipt in the United States Patent and Trademark Office of the following materials:

1. Amendment Trans. Letter w/cert. of mailing; and
2. Amendment.

GEH/mbb
8/20/03





AMENDMENT TRANSMITTAL LETTER (Large Entity)

Docket No.

FP01-091US

Applicant(s): Toshio Itai et al.

Serial No.

09/950,030

Filing Date

September 10, 2001

Examiner

Arbes, C.

Group Art Unit

3729

Invention: INSULATION-DISPLACEMENT CONNECTOR CONNECTING APPARATUS AND METHOD

TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

CLAIMS AS AMENDED

	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST # PREV. PAID FOR	NUMBER EXTRA CLAIMS PRESENT	RATE	ADDITIONAL FEE
TOTAL CLAIMS	13 -	20 =	0 x	\$18.00	\$0.00
INDEP. CLAIMS	2 -	3 =	0 x	\$84.00	\$0.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT					\$0.00

- ☒ No additional fee is required for amendment.
- ☐ Please charge Deposit Account No. _____ in the amount of _____
- ☐ A check in the amount of _____ to cover the filing fee is enclosed.
- ☒ The Director is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 03-1030
- ☒ Any additional filing fees required under 37 C.F.R. 1.16.
- ☒ Any patent application processing fees under 37 CFR 1.17.

Signature

Dated: August 20, 2003

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I certify that this document and fee is being deposited on 8-20-03 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signature of Person Mailing Correspondence

Marie B. Bufalo

Typed or Printed Name of Person Mailing Correspondence

CC: